

Shun-ichi UDAGAWA* & Kouhei FURUYA** : **Two
noteworthy Ascomycetes, *Zopfiella matsushimae*
and *Sporormiella pascua***

宇田川俊一*・古谷航平** : 注目される子のう菌類 2 種

Two peculiar species of Ascomycetes from Japan are described in the present paper. *Zopfiella matsushimae* sp. nov. (Sordariaceae, Pyrenomycetes) is characterized by triangular ascospores with a lateral germ pore and a short hyaline basal cell. It does not correspond with any known species of the genus, hence is described as new. The second fungus, *Sporormiella pascua* (Sporormiaceae, Loculoascomycetes) has hitherto only been found on cow dung from Europe. This isolate may actually represent a new record of the species outside the above locality.

Zopfiella matsushimae Udagawa et Furuya sp. nov. (Fig. 1)

Culturis in agar cum decocto tuberorum et carota effusis, planis, tenuibus, submersis; ascocarpis abundantibus, valde flavo-brunneis; reverso plus minusve brunneo-nigro.

Ascocarpis superficialibus vel plerumque immersis, dispersis, atrobrunneis vel fere nigris, sphaericis vel subsphaericis, vulgo 150-280 μ m diam., non-ostiolatis, dense pilosis; pilis hyalinis vel dilute flavo-brunneis, rectis vel flexuosis, septatis, levibus, prope basin 2-2.5 μ m diam., superne angustatis, simplicibus vel ramosis. Peridio paulo crasso, primo semitranslucido, deinde atrobrunneo et opaco, coriaceo; cellulis crassis et irregularibus. Ascis octosporis, late clavatis, 110-135 \times (16-) 24-32 μ m, superne rotundatis, ad apicem cum annulo parvo praeditis, basi in stipitem attenuatis usque 28-48 μ m longis. Paraphysibus hyalinis, moniliformibus, 8-12 μ m latis. Ascosporis biseriatis, primo hyalinis, unicellularibus, deinde transverse uniseptatis, omnino 28-32 μ m longis. Cellula superiore triangulari ad apicem late rotundata, valde olivaceo-brunnea, opaca, 18-21 \times 14-16 (-18) μ m; foramine

* Department of Microbiology, National Institute of Hygienic Sciences, Kamiyoga 1-chome, Setagaya-ku, Tokyo 158. 国立衛生試験所.

** Fermentation Research Laboratories, Sankyo Co., Ltd., Hiro-machi 1-chome, Shinagawa-ku, Tokyo 140. 三共株式会社醸酵研究所.

germinali circulari, circa $1\mu\text{m}$ diam., laterali praedito. Cellula inferiore hyalina, primo triangulari, $12\text{--}16\mu\text{m}$ longa, deinde collapsa.

Mycelio hyalino vel dilute brunneo, ramoso, septato, levi, $1.5\text{--}7(-11)\mu\text{m}$ diam. Conidiis incognitis.

Typo: NHL 2751, in culturis ex solo, Naguri-mura, Iruma-gun, Saitama-Pref., in Japonia, 21. iii. 1975.

Etym.: The species is named after the Japanese Mycologist Mr. T. Matsushima.

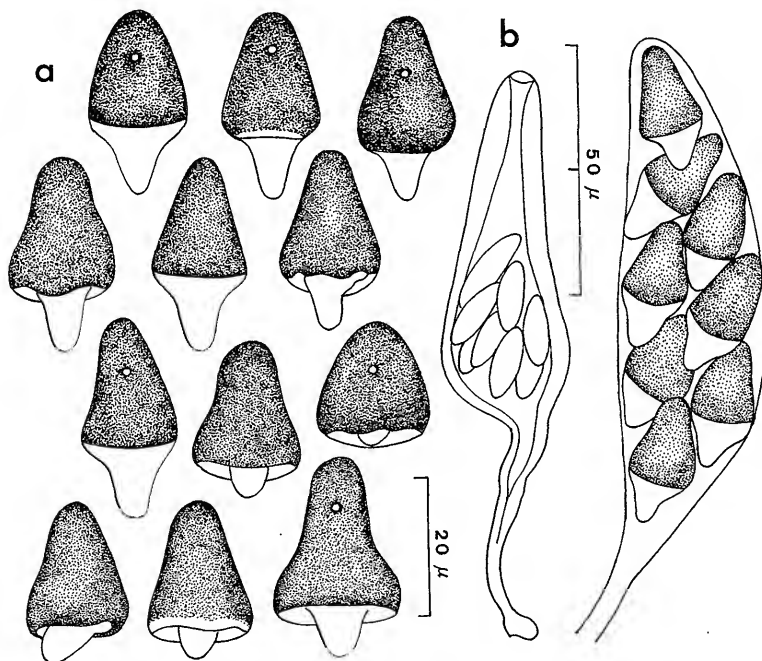


Fig. 1. *Zopfiella matsushimae*. a. ascospores. b. asci.

Cultures on potato-carrot agar spreading broadly, plane, thin, vegetative mycelium submerged; aerial mycelium white, loose, usually prostrate; ascocarps abundantly produced throughout the agar, dark yellowish brown, evenly scattered; reverse more or less brownish black.

Ascocarps superficial to mostly immersed, scattered, dark brown to

nearly black, spherical to subspherical, mostly 150–280 μm in diam., non-ostiolate, densely clothed with hyaline to pale yellowish brown, hyphal-like hairs; hairs straight to flexed, septate, smooth-walled, 2–2.5 μm wide near base, tapering above, unbranched or branched. Peridium rather thick, at first semitransparent, becoming dark brown and opaque at maturity, coriaceous, consisting of thick-walled, irregular cells. Asci 8-spored, broadly clavate, 110–135 \times (16–) 24–32 μm , rounded above, with a small, thickened ring in apex, tapering below into a rather long stipe measuring about 28–48 μm long. Paraphyses hyaline, moniloid, 8–12 μm wide, evanescent at maturity. Ascospores biserial, at first hyaline, one-celled, then becoming transversely uniseptate, totally 28–32 μm long; upper cell triangular with a broadly rounded apex, dark olivaceous brown, opaque, 18–21 \times 14–16 (–18) μm , with a lateral, circular germ pore measuring about 1 μm in diam.; lower cell hyaline, at first triangular, 12–16 μm long, then becoming papilliform due to the collapse, reduced to 4–6 μm long.

Mycelium hyaline to pale brown, branched, septate, smooth, 1.5–7 (–11) μm wide. Conidial structures not seen.

At 37 C, growth is very restricted.

Isolation: Culture from soil, Naguri-mura, Iruma-gun, Saitama-Pref., March 21, 1975, NHL 2751 (=SANK 28875). Dried culture in Mycological Herbarium, NHL, Tokyo.

Firstly this fungus described from Thailand soil as *Zopfiella* sp. MFC-4990 (Matsushima)¹⁾. We have recognized it as distinct and unique in the genus. The new species closely resembles *Z. pilifera* Udagawa et Furuya²⁾ in that it possesses triangular ascospores with a hyaline basal cell. In the former, however, the ascospores are broadly rounded at the apex and the germ pore may be located far down from the apex of spore.

Sporormiella pascua (Niessl) Ahmed et Cain, Can. J. Botany, 50: 454 (1972). (Fig. 2)

Sporormia pascua Niessl, Oesterr. Botan. Z., 28: 165 (1878).

Cultures on potato-carrot agar growing rather rapidly, thin, vegetative mycelium submerged, dark brownish grey, producing abundant pseudothecia into the substratum; reverse slightly dull orange.

Pseudothecia black, scattered, partially or wholly immersed, subspherical, 200–240 μm in diam., hairy or glabrous; neck small, papilliform, black,

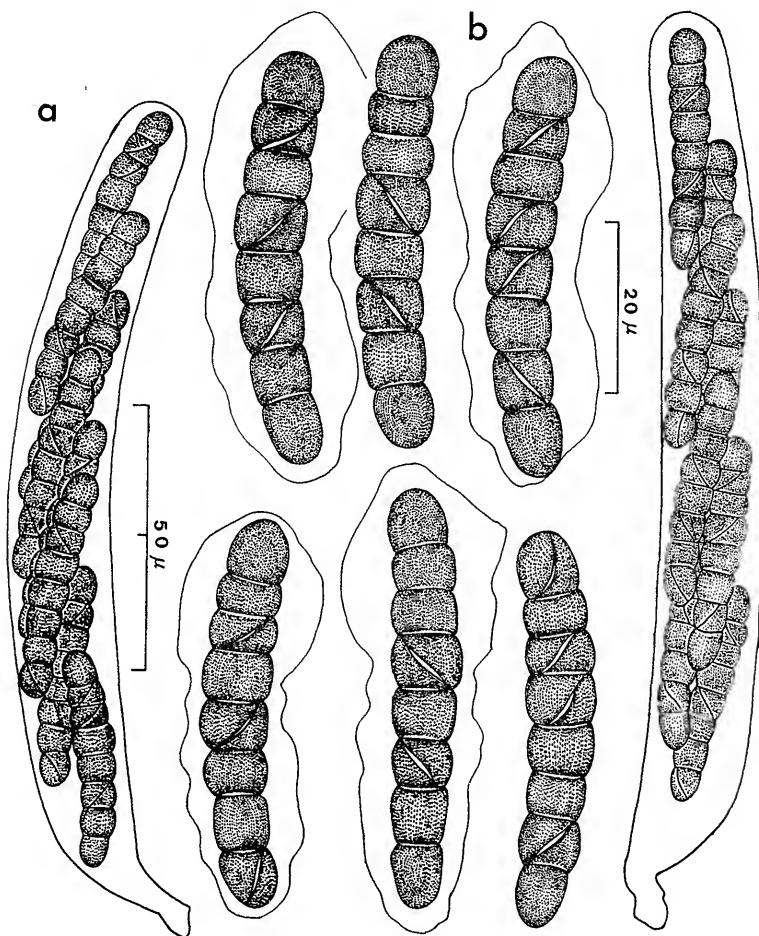


Fig. 2. *Sporormiella pascua*. a. asci. b. ascospores.

glabrous. Peridium thick, membranaceous to coriaceous, opaque. Asci bitunicate, 8-spored, cylindrical, $145-165 \times 20-21 \mu\text{m}$, broadly rounded above, slightly broader near the base, abruptly contracted below into a short stipe. Pseudoparaphyses filiform. Ascospores bi- or tri-seriate, 8-celled, cylindrical, $(44-) 46-50 (-56) \times 8-9 \mu\text{m}$, more or less curved, dark brown and opaque, broadly rounded at the ends, surrounded by a broad hyaline gelatinous

sheath, transversely septate; constrictions at septa broad and shallow; cells not easily separable; the fourth cell from the upper end largest, about $7 \times 8-9 \mu\text{m}$, tapering gradually toward each end; germ slit oblique. Conidial structures not observed.

At 37C, growth is nil.

Isolation: Culture from Ephedrae Herba (crude drug from stem of *Ephedra sinica* Stapf), which was imported from China, Setagaya-ku, Tokyo, August 10, 1975, NHL 2752.

S. pascua is similar microscopically to *S. minipascua* Ahmed et Cain and *S. ontariensis* (Cain) Ahmed et Cain in having 8-celled ascospores that are characterized by the presence of the fourth enlarged cell. From *S. ontariensis* (Ahmed and Cain)³⁾, the species is distinguished by smaller dimensions of its asci and ascospores. For a discussion of the relationship of *S. minipascua* see under the previous report (Furuya and Udagawa)⁴⁾.

References

- 1) Matsushima, T. 1975. Icones Microfungorum a Matsushima Lectorum. Kobe, Japan. P. 186 and pl. 404, figs. 3-5.
- 2) Udagawa, S. and K. Furuya. 1972. Trans. Mycol. Soc. Japan, **13**: 255-259.
- 3) Ahmed, S.I. and R.F. Cain. 1972. Can. J. Bot., **50**: 419-477.
- 4) Furuya, K. and S. Udagawa. 1972. J. Gen. Appl. Microbiol. Tokyo, **18**: 455-467.

* * * *

Zopfiella matsushimae は埼玉県入間郡名栗村の土壌から分離された。本菌は最初タイ国の土壌から松島氏により発見, *Zopfiella* sp. MFC-4990 として報告されているが, 著者は他の *Zopfiella* 既知種と明らかに異なる点を認め新種として発表することにした。その特徴は三角形, 2細胞の子のう胞子を生ずることで, 同様の胞子を形成する *Z. pilifera* とは子のう胞子が大きく, 胞子中の暗色細胞先端が円いこと, 発芽孔が暗色細胞の側面に生ずる点で明らかに相違する。

Sporormiella pascua は中国より輸入された生薬麻黄試料から分離された。*S. pascua* はこれまでヨーロッパで牛糞から得られたのみで, 北米では類似種 *S. minipascua*, *S. ontariensis* が知られているにすぎない。すなわち, ヨーロッパ以外での記録はないようである。上記の類似種とは子のう胞子の大きさで区別される。8細胞の子のう胞子を形成, 胞子の上から4番目の細胞が大きい点に特徴がある。